

## **533-02 Parallel Acceleration Taper for 16' Ramp (60 MPH Design Speed)**

(This section last updated 11-20-18)

This detail is similar to [PV-411](#), but includes a 1000 foot minimum length of acceleration lane.

This detail is intended to be used where a parallel acceleration/deceleration lane is desired for improved operations and/or safety or due to other constraints (ROW, Environmental, etc.) on projects that involve interchanges, rest areas, or weigh scales.

The use of this detail is mandatory on new construction or reconstruction projects and it is recommended to be incorporated into other projects (3R, 4R, etc.) if possible in the situations listed below:

- On any rural interstates, freeways, or expressways having three or more existing or 20 year design travel (future) lanes in one direction.
- On Interstate 80 from Des Moines to Davenport.
- On Interstate 380 from Coralville to Cedar Rapids.
- On Interstate 35 from Des Moines to Ames.

This detail may also be used on rural interstates, freeways, or expressways having two travel lanes in one direction on facilities where there is a desire to improve operations or safety, or there are other constraints (ROW, Environmental, etc.) preventing the use of the tapers provided in the Standard Road Plan PV series.

This detail may be used on urban interstates, freeways, or expressways having two or more existing or 20 year design travel (future) lanes in one direction, with consideration given to spacing to adjacent interchanges. If a traffic analysis indicates that an auxiliary lane is needed between subsequent interchanges, the details provided may be used by removing the tapered portion of the acceleration/deceleration lane and placing the details end to end thus creating the auxiliary lane.

This detail was designed using a design speed of 60 MPH, but is intended to be modified if a different design speed is desired. The length needed for the parallel portion of the acceleration/deceleration lane is determined by using a LOS analysis using Highway Capacity Manual concepts. Maintaining a LOS B for rural interstates is desirable; however, LOS C may be acceptable with FHWA approval. Maintaining a LOS C is desirable on urban interstates; however, LOS D may be acceptable with FHWA approval. This analysis requires breakdowns and volumes of traffic for the ramp and mainline, number of lanes on the ramp and mainline, and traffic speeds on the ramp and mainline. For projects being completed by IDOT staff, this analysis can be completed by the [Geometrics Engineer](#). For projects being completed by consultants, they will be responsible for completing this analysis. When this detail is modified for use on a project, it should be sent to the [Geometrics Engineer](#) for review.

Contact the [Geometrics Engineer](#) for additional information regarding use of this detail.